

A detailed illustration of various animals, including birds, fish, insects, and mammals, arranged in a circular pattern against a black background. The animals are depicted in various poses, some flying, some swimming, and some standing. The illustration is highly detailed, showing the textures of feathers, scales, and fur. The animals include a bald eagle, a blue jay, a hawk, a falcon, a penguin, a walrus, a seal, a fish, a turtle, a cat, a dog, a snake, a butterfly, a dragonfly, a beetle, a moth, and a grasshopper. The illustration is signed 'Mar. McClellan © 2004' in the bottom right corner.

MARK McCOLLOUGH

MAY 31, 2006

Recommended Changes to Maine's Endangered and Threatened Species List

May 31, 2006

INTRODUCTION

The Maine Department of Inland Fisheries and Wildlife (MDIFW) is currently in the process of recommending updates to the State's Endangered and Threatened Species list. These proposed changes include a) 12 new listings, b) 1 delisting, c) a change of status from Endangered to Threatened for 1 currently listed species, and d) adding the qualifier of "breeding population only" to 2 species currently listed as Endangered. If approved by the Legislature, this will be the first update to Maine's list since 1997.

The current listing process essentially began with completion of *Maine's Comprehensive Wildlife Conservation Strategy* in September 2005 (available on the MDIFW website <http://www.state.me.us/ifw/wildlife/compwildlifestrategy/index.htm>). Preparation of this document required a comprehensive review of most of Maine's fish and wildlife species, thus providing impetus to this listing process.

The official listing process began in November 2005 with establishment of committees organized by species group (i.e. amphibians and reptiles, birds, fish, invertebrates, and mammals). These committees were comprised primarily of MDIFW species experts, who reviewed candidate species under their purview to determine whether a species qualified for listing as Endangered or Threatened under the Maine Endangered Species Act. Each determination was guided by established, scientific criteria and listing guidelines based on mandates of the Act and related rules. Initial recommendations, along with supporting documentation, were then submitted to species experts outside the Department for review and input. Based on the reviewer's comments, each listing committee made final modifications to their recommendations, if appropriate.

Listing recommendations are now ready for public review. Following the public hearing and comment period, the Commissioner of MDIFW will make final recommendations to the Legislature, which has sole authority to make changes to the state's Endangered and Threatened species list – but only upon the recommendation of the Commissioner. Therefore, it is important the public provide input to MDIFW at this point.

The following pages include an outline of the listing schedule (including dates for two public hearings), a one-page explanation of what listing means, a one-page summary of proposed changes to the Endangered and Threatened Species List, a list of species currently listed as Endangered or Threatened, and two-page listing justification sheets for each species being recommended for new listing or change of status.

It should be noted that there is a separate list of state Endangered and Threatened marine species. The Maine Department of Marine Resources is responsible for maintaining and updating that list.

Schedule for 2006 E&T Listing Process

E/T Listing Activity	Due Date
Initial meeting	November 30, 2005
Additional planning (if necessary)	December 29, 2005
Initial meetings with committees	January 6, 2006
Present Draft list to Augusta staff	March 13, 2006
Review of lists by outside reviewers	March 13 - April 21, 2006
Revised list to Augusta for review	May 8, 2006
Revise list as necessary	May 24, 2006
Review with Commissioner's Advisory Council	May 24, 2006
Public Hearings	June 20-21, 2006
Review with Commissioner's Advisory Council	June 23, 2006
Finalize listing recommendations	July 27 – August 16, 2006
Review with Commissioner's Advisory Council	August 17, 2006
Draft legislation	September 8, 2006
Work with legislative F&W Committee	January – March 2007

PUBLIC HEARINGS

June 20, 2006

Portland City Hall, Council Chambers, 389 Congress Street, **Portland, 6:30 p.m.**

June 21, 2006

Ramada Inn, 357 Odlin Road, **Bangor, 6:30 p.m.**

WHAT DOES LISTING MEAN?

The Maine Endangered Species Act (MESA) gives the Commissioner of MDIFW the authority to make recommendations for listing and for maintaining a list of species that are at risk of becoming extinct in Maine. The purpose of MESA is stated in the Act.

§12801. Declaration of purpose

The Legislature finds that various species of fish or wildlife have been and are in danger of being rendered extinct within the State of Maine, and that these species are of esthetic, ecological, educational, historical, recreational and scientific value to the people of the State. The Legislature, therefore, declares that it is the policy of the State to conserve, by according such protection as is necessary to maintain and enhance their numbers, all species of fish or wildlife found in the State, as well as the ecosystems upon which they depend.

Listing of a species, and the subsequent management of that species, are two distinct steps.

1. Listing – Listing is the structured, systematic, and scientific examination of the interacting factors that qualifies a species as a candidate for listing as an Endangered or Threatened species in Maine.
2. Management – The listing of a species (in any category) does not automatically ensure a given level of management, nor does it automatically commit resources or programs for that species. Those commitments are part of a subsequent and separate step to the listing process.

Separating these two steps allows the Department to recommend species solely on biological facts, thus purely reflecting the species' likelihood of extinction within Maine. The decision can be made without being constrained by political pressures; limits on agency funding, staffing, or management capabilities; the ease or difficulty of managing a species; or by a species' potential responsiveness or lack of responsiveness to management.

By having a second step, more thoughtful and refined management decisions are possible. The feasibility, desirability, and practicality of management options can be considered during the second step, along with the management and regulatory jurisdictions of other state, tribal, and federal agencies. This second step is addressed primarily in MDIFW's species planning process as outlined in *Maine's Comprehensive Wildlife Conservation Strategy* (2005).

The Commissioner of the Maine Department of Inland Fisheries and Wildlife is planning to recommend the following changes to the Endangered and Threatened species list to the Legislature; the Legislature has the sole authority to make the changes, but only upon the recommendation of the Commissioner of MDIFW.

**RECOMMENDED CHANGES TO
MAINE'S ENDANGERED AND THREATENED SPECIES LIST
May 31, 2006**

ENDANGERED SPECIES

Birds

- American Pipit (*Anthus rubescens*) (Change to: breeding population only)
Peregrine Falcon (*Falco peregrinus*) (Change to: breeding population only)

Fish

- Redfin Pickerel (*Esox americanus americanus*) (New listing)

Invertebrates

Butterflies and Skippers

- Juniper Hairstreak (*Callophrys gryneus*) (New listing)

Dragonflies and Damselflies

- Rapids Clubtail (*Gomphus quadricolor*) (New listing)

Mammals

- New England Cottontail (*Sylvilagus transistionalis*) (New listing)

THREATENED SPECIES

Birds

- Black-crowned Night Heron (*Nycticorax nycticorax*) (New listing)
Common Moorhen (*Gallinula chloropus*) (New listing)
Great Cormorant (*Phalacrocorax carbo*) (breeding population only) (New listing)
Short-eared Owl (*Asio flammeus*) (breeding population only) (New listing)

Invertebrates

Butterflies and Skippers

- Purple Lesser Fritillary (*Boloria chariclea grandis*) (New listing)
Sleepy Duskywing (*Erynnis brizo*) (New listing)

Dragonflies and Damselflies

- Pygmy Snaketail (*Ophiogomphus howei*) – Delist (Remove from list)
Ringed Boghaunter (*Williamsonia lintneri*) – Down-list from **Endangered**
Boreal Snaketail (*Ophiogomphus colubrinus*) (New listing)

Freshwater Mussels

- Brook Floater (*Alasmodonta varicosa*) (New listing)

MAINE'S CURRENT ENDANGERED AND THREATENED SPECIES LIST
May 31, 2006

ENDANGERED SPECIES

Birds

Golden Eagle (*Aquila chrysaetos*)
Peregrine Falcon (*Falco peregrinus*)
Piping Plover (*Charadrius melodus*)
Black Tern (*Chlidonias niger*)
Least Tern (*Sterna antillarum*)
Roseate Tern (*Sterna dougallii*)
Sedge Wren (*Cistothorus platensis*)
Grasshopper Sparrow (*Ammodramus savannarum*)
American Pipit (*Anthus rubescens*)

Invertebrates

Butterflies and Skippers

Clayton's Copper (*Lycaena dorcas claytoni*)
Edwards' Hairstreak (*Satyrium edwardsii*)
Hessel's Hairstreak (*Callophrys hesseli*)
Katahdin Arctic (*Oenis polixenes katahdin*)

Dragonflies and Damselflies

Ringed boghaunter (*Williamsonia lintneri*)

Mayflies

Flat-headed mayfly (Roaring Brook mayfly)(*Epeorus frisoni*)

Reptiles

Snakes

Black Racer (*Coluber constrictor*)

Turtles

Box Turtle (*Terrapene carolina*)
Blanding's Turtle (*Emys blandingii*)

THREATENED SPECIES

Birds

Bald Eagle (*Haliaeetus leucocephalus*)
Atlantic Puffin (*Fratercula arctica*)
Razorbill (*Alca torda*)
Harlequin Duck (*Histrionicus histrionicus*)
Arctic Tern (*Sterna Paradisaea*)
Upland Sandpiper (*Bartramia longicauda*)

Fish

Swamp Darter (*Etheostoma fusiforme*)

Invertebrates

Moths

Pine Barrens Zanclognatha (*Zanclognatha martha*)
Twilight Moth (*Lucia rachelae*)

Dragonflies and Damselflies

Pygmy Snaketail (*Ophiogomphus howei*)

Freshwater Mussels

Tidewater Mucket (*Leptodea ochracea*)
Yellow Lampmussel (*Lampsilis cariosa*)

Mayflies

Tomah Mayfly (*Siphonisca aerodromia*)

Mammals

Northern Bog Lemming (*Synaptomys borealis*)

Reptiles

Turtles

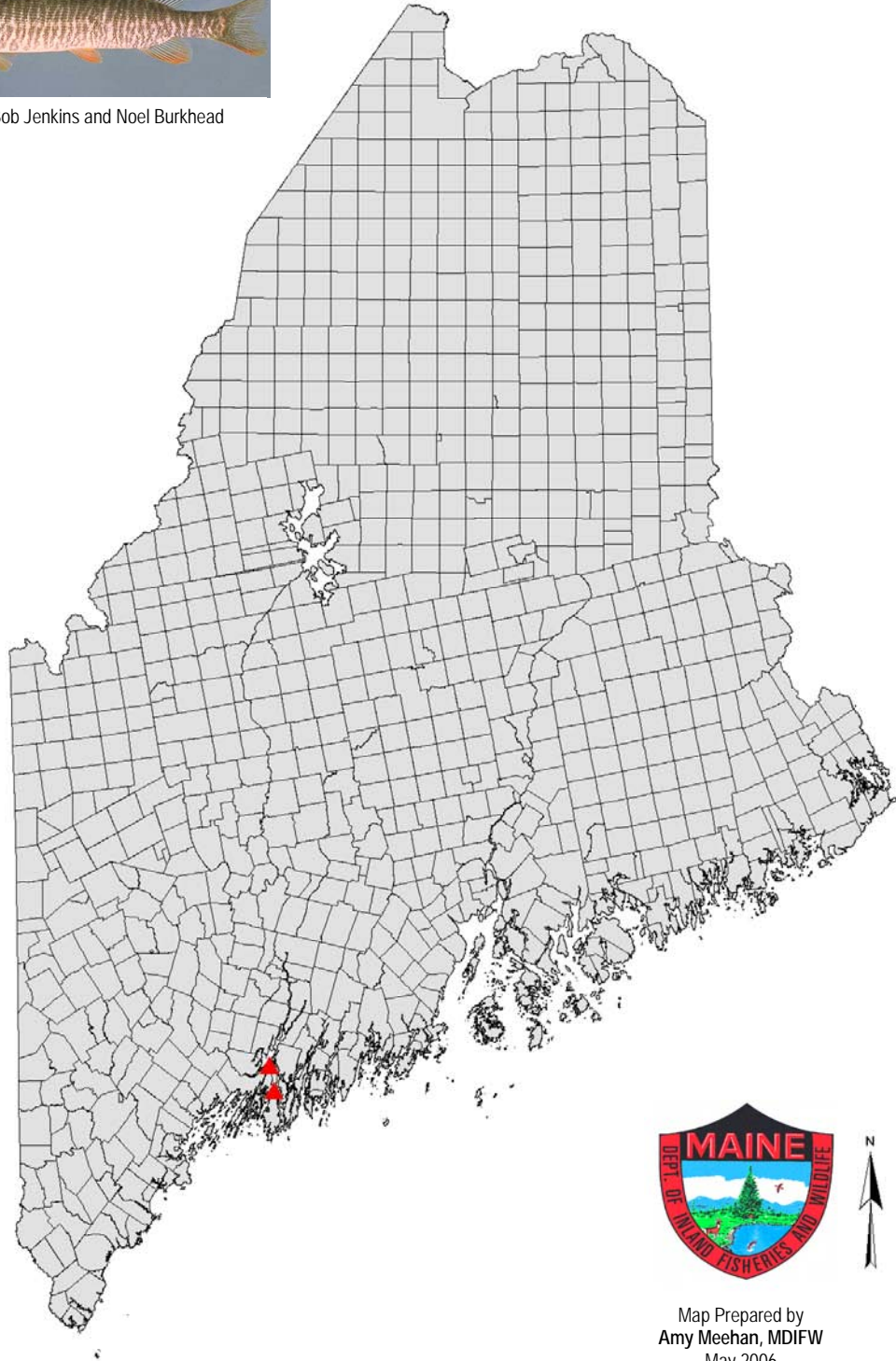
Spotted Turtle (*Clemmys guttata*)

Occurrences of Redfin Pickerel (*Esox americanus americanus*)

Recommended Listing Status: ENDANGERED



Photo by Bob Jenkins and Noel Burkhead



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Esox americanus americanus*

Common Name: Redfin Pickerel

Taxonomic Group: Fish

Range in Maine: Two waters within one river drainage; extirpated from another water and drainage

Habitat: Slow flowing lowland streams and backwaters; often heavily vegetated

Seasonal Residency: Year-round inhabitants

Recommended Listing Status: ENDANGERED

Basis for Listing Recommendation: Currently listed as SPECIAL CONCERN in Maine and as a priority 1 species in greatest conservation need of Maine's Comprehensive Wildlife Conservation Strategy. Recommend upgrade to ENDANGERED status because of its 1) rarity in Maine, 2) loss of one known population, 3) recent habitat degradation to one persisting population, 4) poor competitiveness with other fish species, and 5) preference for relatively rare stream types in Maine.

The current distribution of Maine's Redfin Pickerel is quite restrictive with both remaining populations occurring within the same drainage, although fragmented by existing low head dams and the saline conditions of a coastal estuary. Redfin Pickerel are small (generally < 4 inches long), poor competitors with other fish species, and their remaining habitats are located in areas currently experiencing extreme human development and fish community changes associated with illegal species introduction events.

Dispersal and recolonization capabilities are probably quite low because of the barriers and distances between the remaining Maine populations and the nearest neighbors to the south in New Hampshire.

Selected References

Gallagher, M. 1998. The Status of Redfin Pickerel in Maine. MS Thesis. UMO. 56 p.

Kramer, N. Non-sport and Commercial Management Plan. 2002. MDIFW. 33 p.

Scarola, J. F. 1973. *Redfin Pickerel* in Freshwater Fishes of New Hampshire. NHF&G. p 45.

Scott, W. B. and E. J. Crossman. 1973. Freshwater Fishes of Canada. Bulletin 184. *Fish. Res. Bd. Can.* p 348-351.

Prepared by: Merry Gallagher

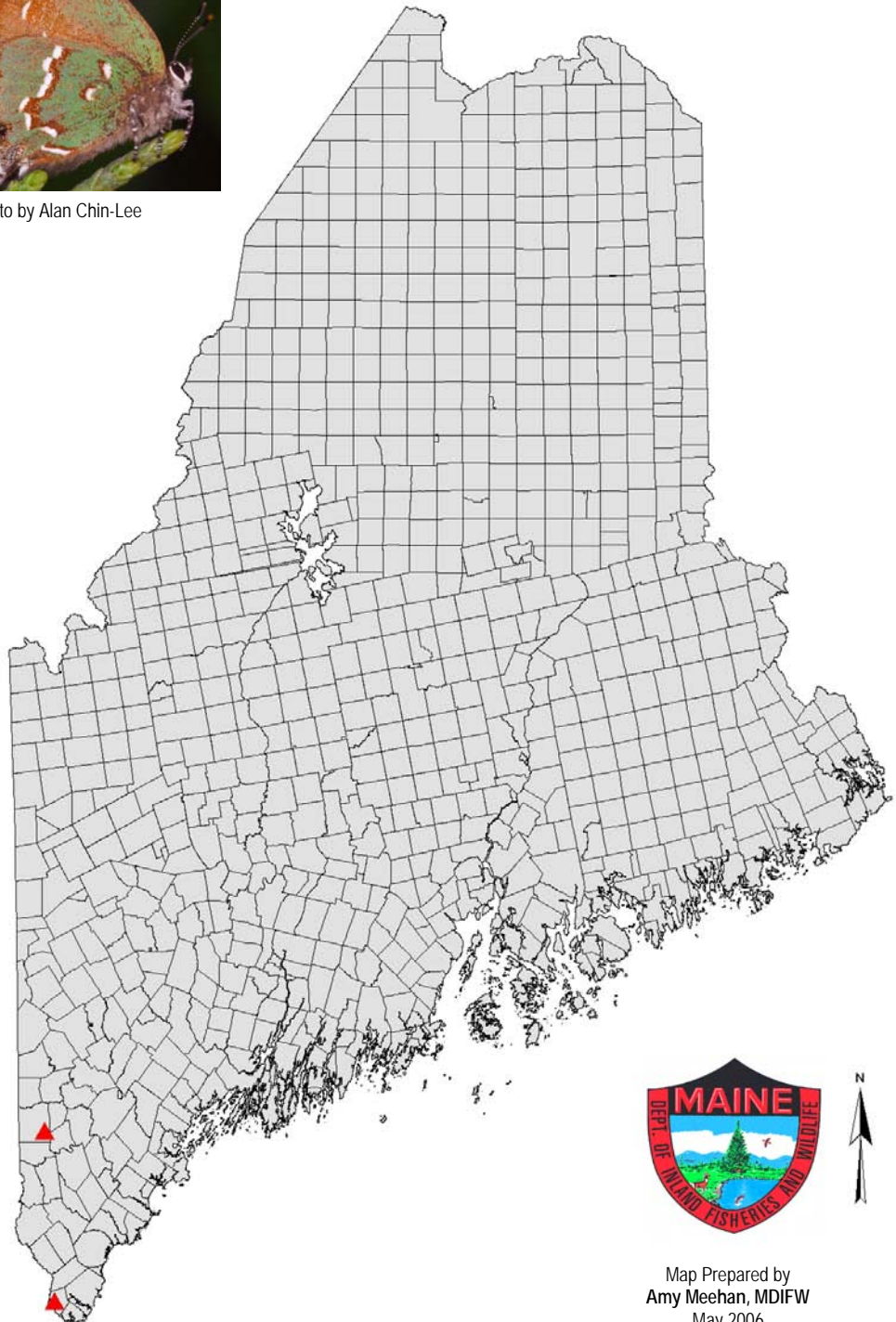
Date: May 9, 2006

Occurrences of Juniper Hairstreak (*Callophrys gryneus*)

Recommended Listing Status: ENDANGERED



Photo by Alan Chin-Lee



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Callophrys gryneus*

Common Name: Juniper Hairstreak

Taxonomic Group: Invertebrate: Butterfly (Lepidoptera)

Range in Maine: Southern (York Co)

Habitat: Old fields and hilltops with eastern red cedar

Seasonal Residency: Year-round

Recommended Listing Status: ENDANGERED

Basis for Listing Recommendation: Juniper Hairstreak is recommended for Endangered status because of its very limited distribution and marked population fragmentation. Its vulnerability to extirpation is intensified by: 1) the rare and specialized nature of its habitat in Maine, 2) significant inferred declines in available habitat, 3) northern range limits in Maine, 3) low population numbers where it occurs, and 4) lack of adequate existing regulations to protect its upland habitat.

This butterfly is only known from two modern localities, both in York County (Webster and deMaynadier 2005). Juniper Hairstreak is rarely found far from its larval host plant, eastern red cedar (*Juniperus virginiana*), a rare and declining evergreen tree restricted to old fields, power lines, and rocky outcrops in southern Maine. Given the apparent rarity of good stands of eastern red cedar capable of hosting viable populations of this butterfly only few additional locations for the species are anticipated with further survey effort.

Good populations of eastern red cedar appear to be declining rapidly in Maine. Reduction in populations of eastern red cedar will undoubtedly result in the decline and possible extirpation of Juniper Hairstreak. At one known hilltop locale in Parsonsfield, natural succession has made much of the summit unsuitable for red cedar as evidenced by the large number of recently dead cedar stems and lack of cedar seedlings. Cedar seedlings were also not observed at the second butterfly colony in a power line right-of-way near Eliot. Excessive mowing of the vegetation to maintain the right-of-way appeared to be removing seedlings at this site. Unless steps are taken in the near future to protect and manage remaining locales with healthy stands of red cedar in Maine the Juniper Hairstreak will likely become extirpated.

Selected References

- Cech, R. and G. Tudor. 2005. Butterflies of the East Coast. Princeton University Press, Princeton, NJ 345pp.
- Scott, J.A. 1986. The butterflies of North America, a natural history and field guide. Stanford Univ. Press, Stanford, CA. 583pp.
- Webster, R.P. and P.G. deMaynadier. 2005. A baseline atlas and conservation assessment of the butterflies of Maine. Technical report of the Maine Department of Inland Fisheries and Wildlife, Bangor, ME 127pp.

Prepared by: Phillip deMaynadier

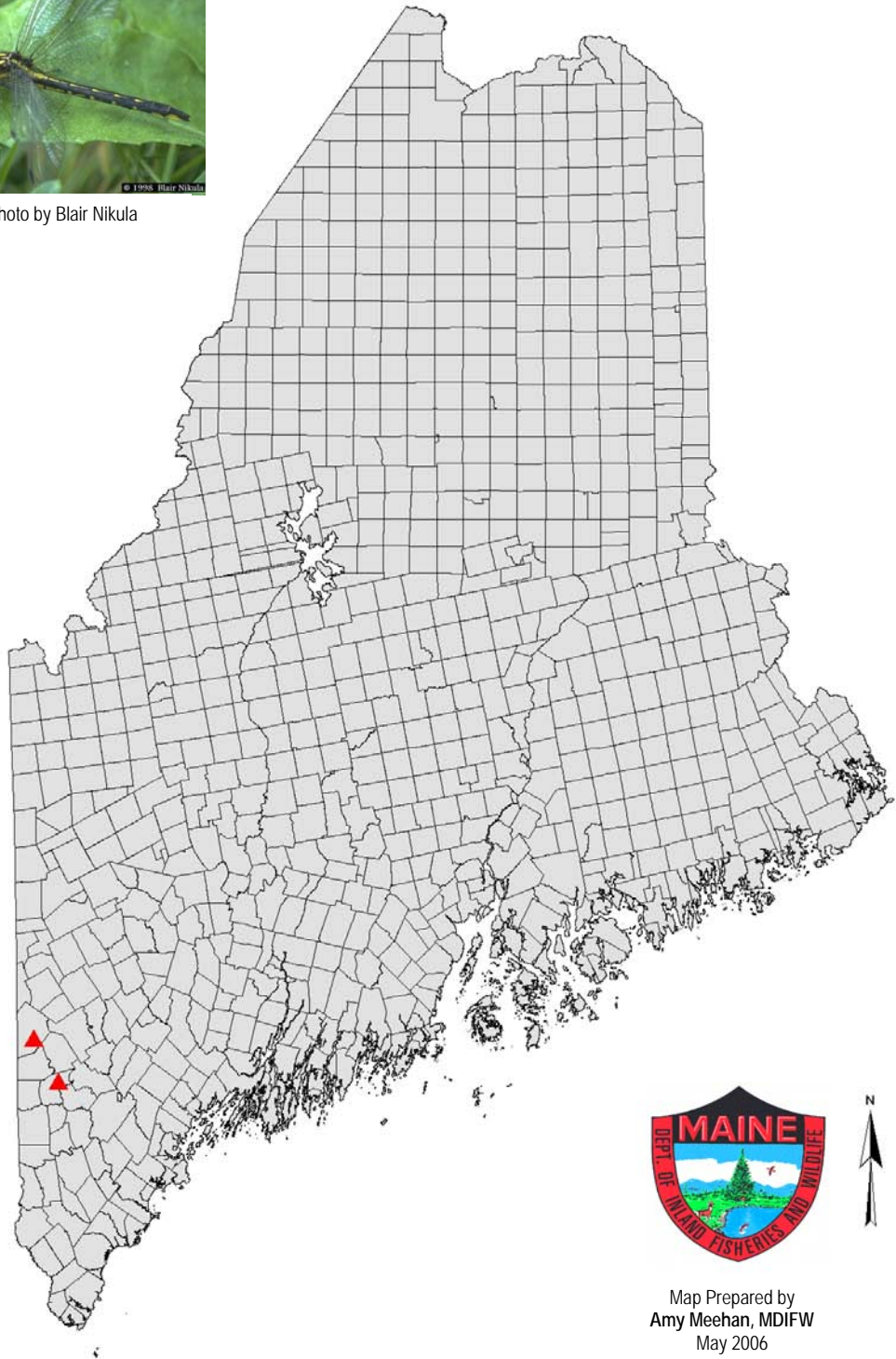
Date: May 10, 2006

Occurrences of Rapids Clubtail (*Gomphus quadricolor*)

Recommended Listing Status: ENDANGERED



Photo by Blair Nikula



Scientific Name: *Gomphus quadricolor*

Common Name: Rapids Clubtail

Taxonomic Group: Invertebrate: Dragonfly (Odonata)

Range in Maine: Saco River (York County)

Habitat: Large, forested streams and rivers

Seasonal Residency: Year-round

Recommended Listing Status: ENDANGERED

Basis for Listing Recommendation: The Rapids Clubtail is recommended for Endangered status because of its highly limited distribution and marked population fragmentation. Its vulnerability to extirpation is intensified by: 1) relatively narrow, riverine habitat specialization, 2) northern range limits in Maine, and 3) sensitivity to both aquatic (larvae) and riparian/upland (adult) perturbations.

This dragonfly is currently known from only one river in York County (Brunelle and deMaynadier 2005). Resident breeding status has been confirmed based on exuvial (shed larval skin) collections from only 2 populations in the upper Saco River. Considered globally rare (G3G4; NatureServe 2006), this species is generally patchily distributed throughout its range. Moderately intensive surveys for riverine dragonflies have been conducted statewide and only few additional locations for the species are anticipated with further survey effort.

The preferred habitat of Rapids Clubtail is clean, free-flowing, forested streams and rivers, which are especially threatened by aquatic, riparian, and watershed degradation in southern Maine where this species is likely to be restricted. Schweitzer (1989) cites dams and deteriorating water quality as the primary factors responsible for declines in related species of riverine odonates.

Selected References

Brunelle, P.M., and P.G. deMaynadier. 2005. The Maine Damselfly and Dragonfly Survey: A Final Report. Technical report submitted to the Maine Department of Inland Fisheries and Wildlife, Bangor, ME.

Dunkle, S.W. 2000. Dragonflies through binoculars: a field guide to dragonflies of North America. Oxford University Press, New York, NY. 266pp.

NatureServe. 2006. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.7. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: May 10, 2006).

Schweitzer, D.F. 1989. A review of Category 2 Insecta in USFWS Regions 3, 4, 5. Unpub. rept. prepared for U.S. Fish and Wildlife Service. Newton Corners, MA. 143pp.

Prepared by: Phillip deMaynadier

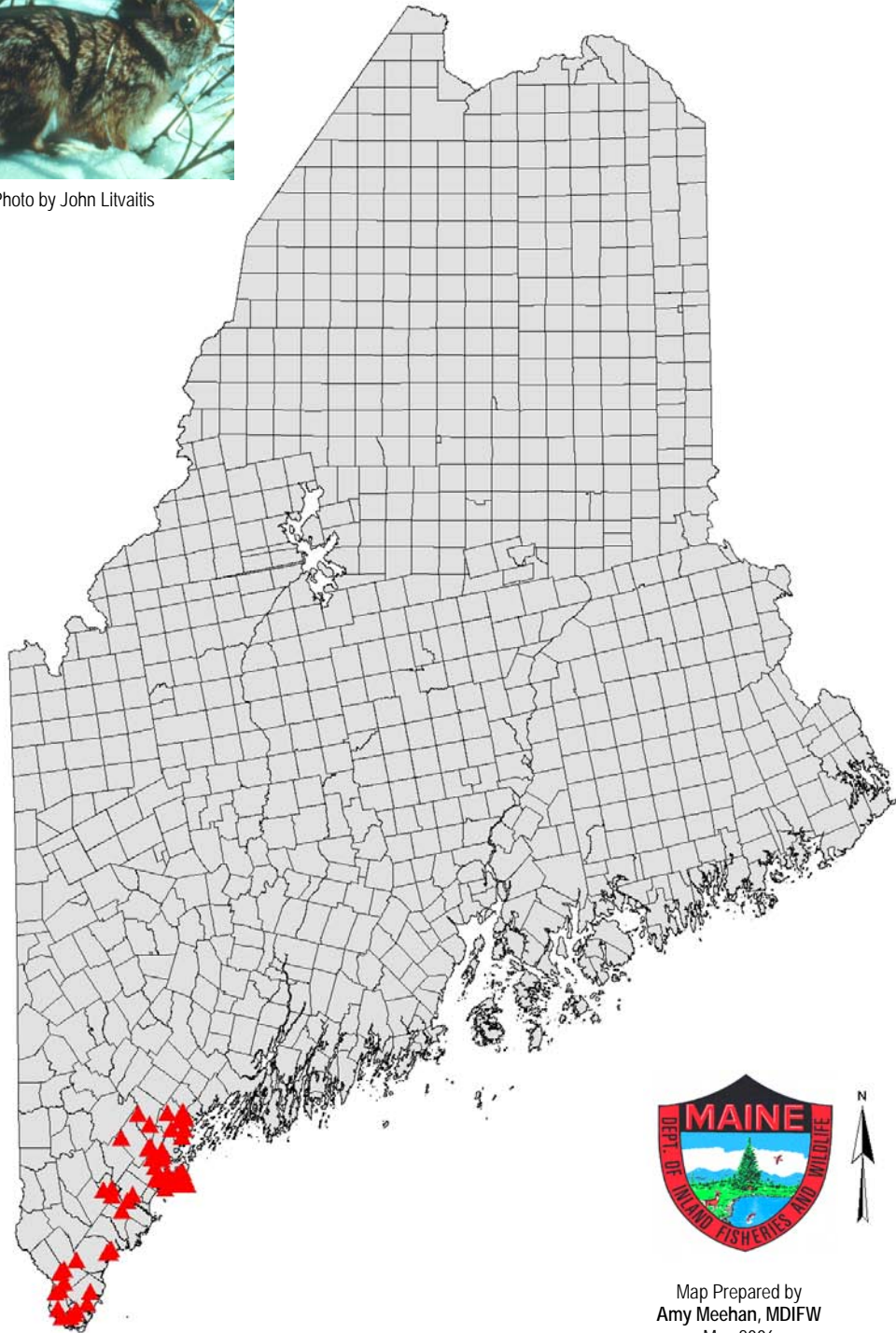
Date: May 10, 2006

Occurrences of New England Cottontail (*Sylvilagus transitionalis*)

Recommended Listing Status: ENDANGERED



Photo by John Litvaitis



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Sylvilagus transitionalis*

Common Name: New England Cottontail

Taxonomic Group: Mammal

Range in Maine: York and Cumberland Counties

Habitat: Brushy early successional habitat

Seasonal Residency: Year-round inhabitants

Recommended Listing Status: ENDANGERED

Basis for Listing Recommendation: The New England cottontail (NEC) is recommended for endangered status for several reasons. The population has declined to only a few hundred individuals and it now occupies only about 17% of its historic range in Maine. New England cottontail need brushy habitat commonly found in old fields. This type of habitat has become increasingly uncommon in Maine due to natural succession and human development, and where it occurs, it is often fragmented into patches too small (< 20 acres) to support this rabbit. Fragmentation of habitat increases the rabbits exposure to predators, limits the amount of space the animal has to live in, and makes it difficult to move to other suitable habitat when dispersing or seeking a mate.

New England cottontails were once found as far north as Fryeburg, Lewiston, and Belfast, but are now limited to York and Cumberland Counties.

There are estimated to be fewer than 350 rabbits in Maine during the winter, and these are restricted to small patches of suitable habitat. Most remaining patches are too small (less than 6 acres) to sustain populations for the long term. Due to habitat fragmentation most of these patches are too isolated for rabbits to successfully colonize other patches as successional changes occur. Without active habitat and population management, it appears unlikely that this species will persist in Maine.

New England cottontails are found only in the New England states and small part of New York north and east of the Hudson River. Their population status in other states is no better, and frequently worse than it is in Maine.

Selected References

Litvaitis, J. A. and W. J. Jakubas. 2004. New England Cottontail (*Sylvilagus transitionalis*) Assessment. Maine Department of Inland Fisheries and Wildlife. Unpublished Document. 73 pp.

Prepared by: Wally Jakubas

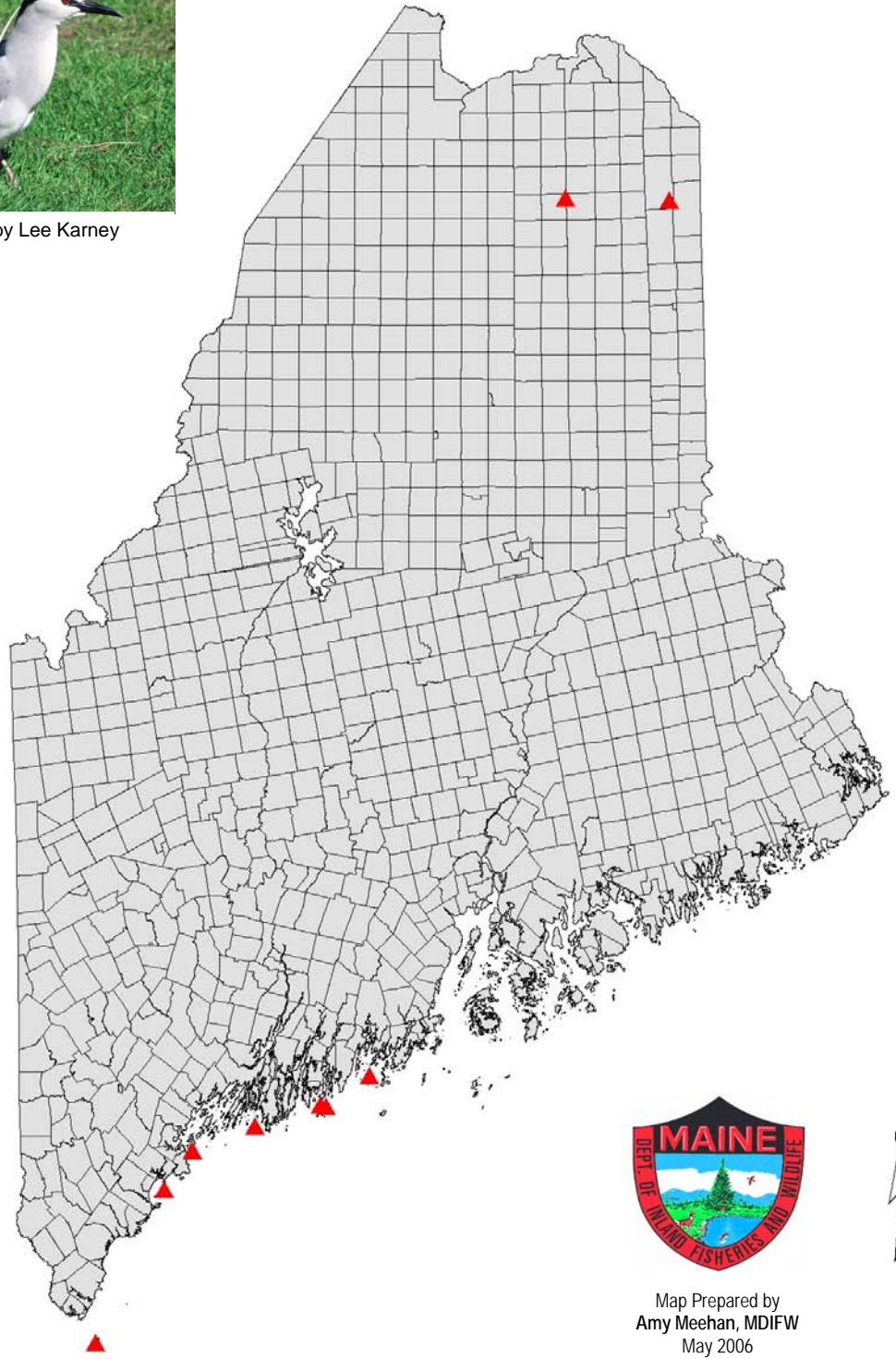
Date: May 9, 2006

Occurrences of Black-crowned Night Heron (*Nycticorax nycticorax*)

Recommended Listing Status: THREATENED



Photo by Lee Karney



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Nycticorax nycticorax*

Common Name: Black-crowned Night Heron

Taxonomic Group: Bird

Range in Maine: Nesting on 7-8 coastal islands from Isle of Shoals to Muscongus Bay

Habitat: Coastal islands with suitable shrubs and trees and other conditions

Seasonal Residency: Nesting season

Recommended Listing Status: THREATENED

Basis for Listing Recommendation: The Black-crowned Night Heron is recommended for Threatened status in Maine because of its limited nesting distribution and small population size. Its vulnerability to extirpation is intensified in coastal areas by high predatory gull populations. In recent years, approximately 200 breeding individuals were reported nesting on 7 coastal islands, a status similar to that reported by Palmer (1949). There is also documented nesting in Aroostook County as well.

This species was listed at Special Concern prior to the last colonial waterbird survey in the mid 1990s. New data show a slight decline from 1977 numbers. In 1977, 117 pairs of Black-crowned Night Herons were reported on 8 coastal islands. By 1991, the population was estimated at 96 pairs. Presently, the Black-crowned Night Heron population is estimated of 95 pairs at 7 sites and the population appears stable but in low numbers. Still more data on this species appears warranted. According to the Birds of North America account for this species, most populations of Black-crowned Night Herons are stable or increasing and specific management actions have not been a major focus. Federal status: None.

Selected References

Adamus, P.R. 1987. Atlas of Breeding Birds in Maine, 1978-1983. Maine Department of Inland Fisheries and Wildlife. Augusta, 366pp.

Davis, W. E. 1993. Black-crowned Night Heron. The Birds of North America, No. 74. A. Poole and F. Gill, Editors.

Palmer, R.S. 1949. Maine Birds. Bull. Mus. Comp. Zool. Vol. 102, Harvard College, Cambridge, MA 656pp.

Prepared by: R. Bradford Allen

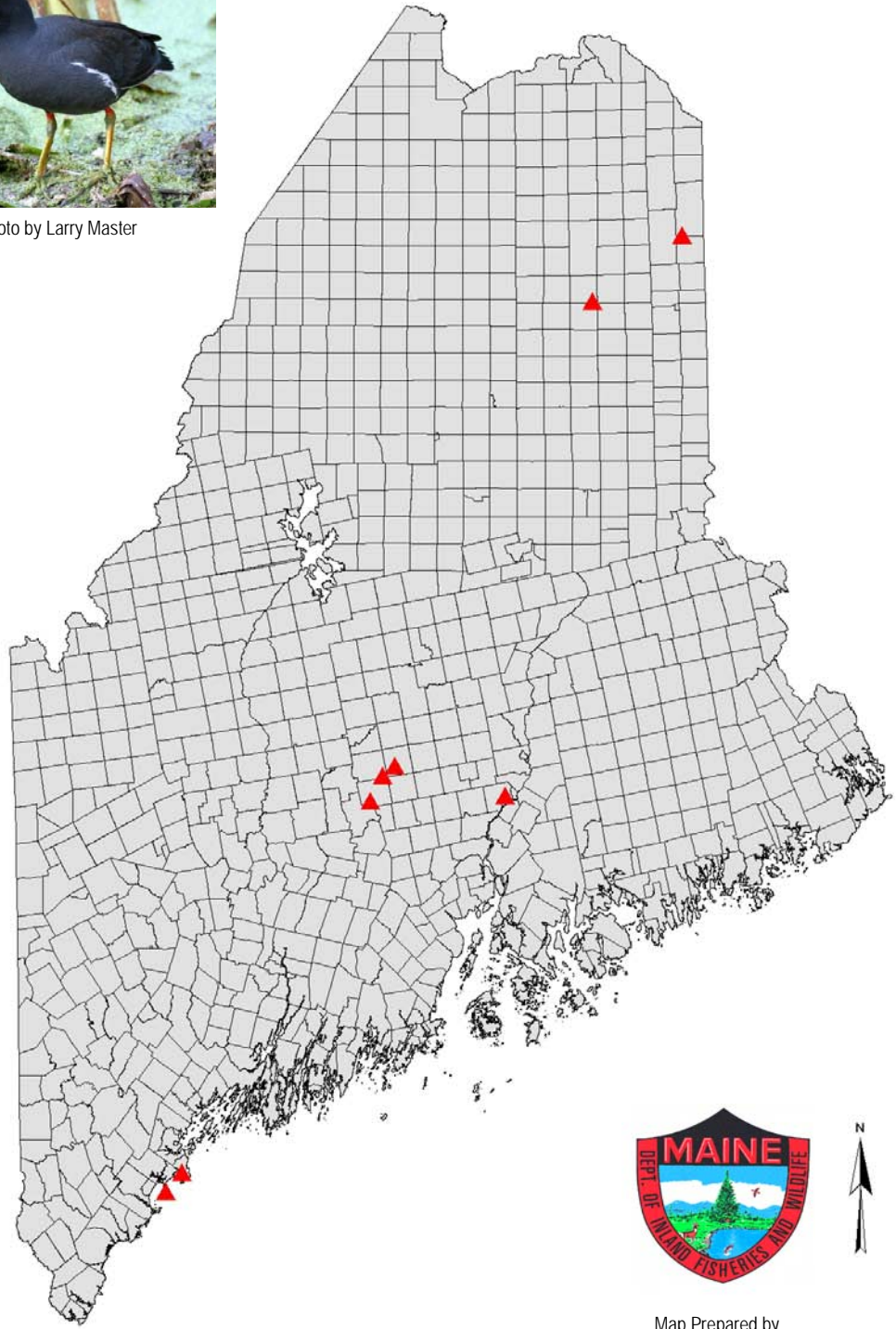
Date: May 9, 2006

Occurrences of Common Moorhen (*Gallinula chloropus*)

Recommended Listing Status: THREATENED



Photo by Larry Master



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Gallinula chloropus*

Common Name: Common Moorhen

Taxonomic Group: Bird

Range in Maine: All of Maine except northern portions of Oxford, Franklin, Somerset, Piscataquis, and Penobscot counties and western Aroostook County.

Habitat: Marshes and ponds often with extensive emergent vegetation.

Seasonal Residency: Summer resident

Recommended Listing Status: THREATENED

Basis for Listing Recommendation: The Common Moorhen is recommended for Threatened status based on a population of less than 100 breeding individuals at fewer than 12 sites. Most occupied wetlands likely support just one breeding pair. This species has been observed in Maine for over 100 years, but always at low numbers. The first breeding record was documented near Sebasticook Lake in Penobscot County, but not until 1938 (Palmer 1949).

Data in support of this listing recommendation result from nearly two decades of field surveys. Beginning in 1989, Gibbs and Melvin (1989, 1990) initiated an effort to catalog marsh bird diversity at over 50 wetlands in Maine. These efforts resumed in the late 1990's expanding the original work to over 200 total sites by 2006. The University of Maine, together with the Maine Dept. of Inland Fisheries and Wildlife, revisited approximately 80 of these previously surveyed sites in 2005 and 2006 to further document rare marsh bird occurrence and begin to assess population trends. Consequently, some sites have been surveyed during two or more breeding seasons over the past 17 years. Based on these three survey efforts, it appears the best habitat for this species has been surveyed.

This species is found across much of North America with the bulk of the population in the American Midwest, eastern U.S., and southeastern Canada. It is a rare breeder in the Maritime Provinces and its long-term status there has been questioned (Erskine 1992). In the Northeast U.S., this species also is a rare breeder and is listed as Endangered in Connecticut. In Maryland and Massachusetts, the Common Moorhen is Special Concern.

Selected References

- Bannor, B. K. and E. Kiviat. 2002. Common Moorhen (*Gallinula chloropus*). In A. Poole and F. Gill, eds. The Birds of North America, No. 685. The Birds of North America Inc., Philadelphia, PA.
- Erskine, A. J. 1992. Atlas of breeding birds of the Maritime Provinces. Nova Scotia Museum, Province of Nova Scotia. 270pp.
- Gibbs, J. P. and S. M. Melvin. 1989. An assessment of wading birds and other wetlands avifauna and their habitats in Maine. Maine Department of Inland Fisheries and Wildlife, Bangor, Maine. 114pp.
- Gibbs, J. P. and S. M. Melvin. 1990. An assessment of wading birds and other wetlands avifauna and their habitats in Maine. Maine Department of Inland Fisheries and Wildlife, Bangor, Maine. 61pp.
- Palmer, R. S. 1949. Maine Birds. Bulletin of the Museum of Comparative Zoology, Volume 102, Harvard College, Cambridge, Mass. 656pp.

Prepared by: Thomas P. Hodgman

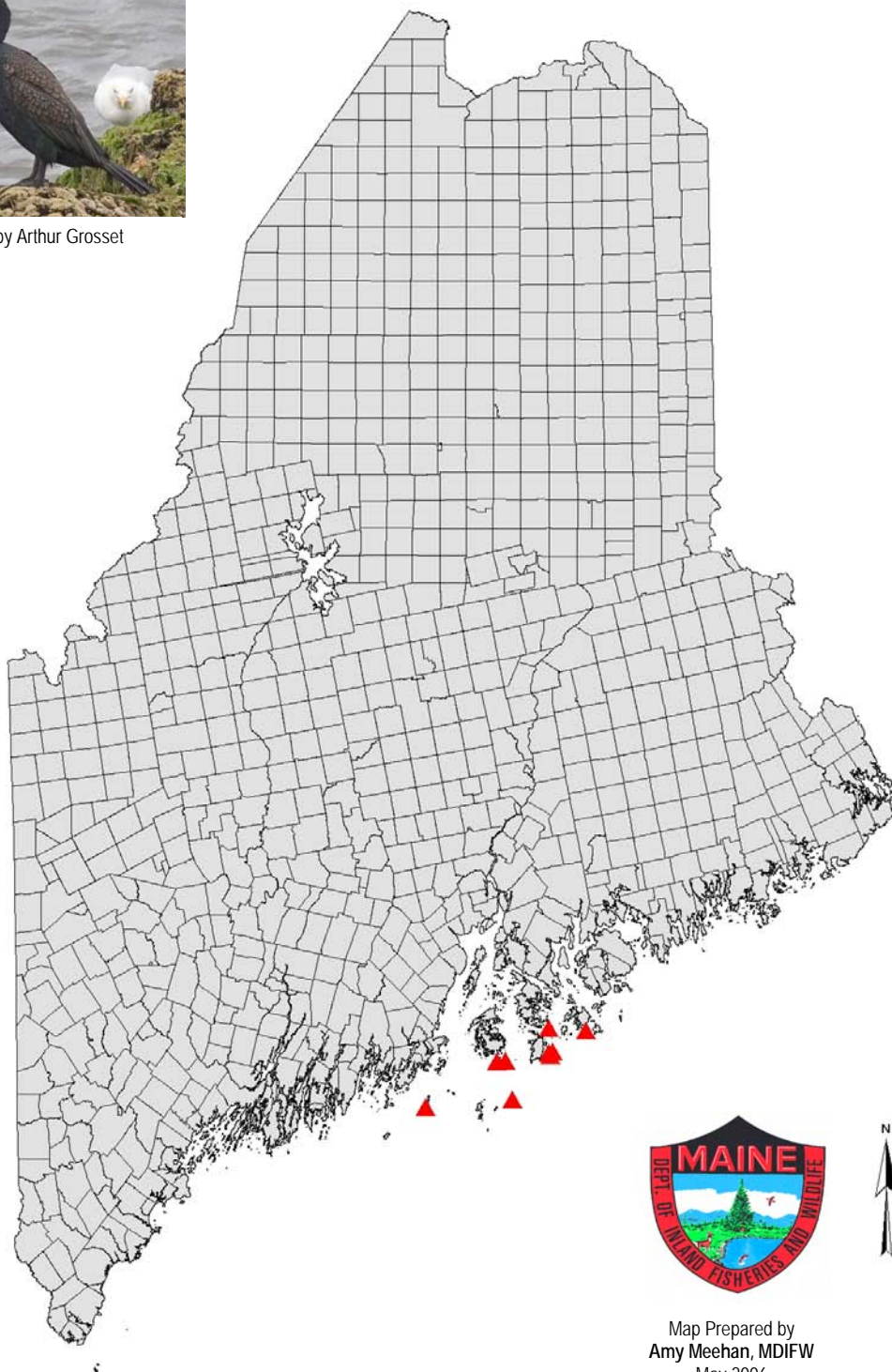
Date: May 10, 2006

Occurrences of Great Cormorant (*Phalacrocorax carbo*)

Recommended Listing Status: THREATENED



Photo by Arthur Grosset



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Phalacrocorax carbo*

Common Name: Great Cormorant

Taxonomic Group: Bird

Range in Maine: Nesting on between 10-12 coastal islands in Outer Penobscot and Jericho Bays

Habitat: Coastal islands with suitable nesting habitat and conditions

Seasonal Residency: Nesting season; wintering migrants from elsewhere

Recommended Listing Status: THREATENED (breeding population only)

Basis for Listing Recommendation: The Great Cormorant is recommended for Threatened status in Maine because of its limited nesting distribution, small population size, and declining population. Its vulnerability to extirpation is intensified by predation from a burgeoning Bald Eagle population. In 2005, fewer than 200 breeding individuals nested. In the recent past, the number was generally 300+ breeding individuals, but the population appears to be declining due to predation of young Great Cormorants by Bald Eagles.

The Great Cormorant is a reestablished nesting species on the coast of Maine. These cormorants suffered the same fate as most island-nesting seabirds and were absent as breeders in Maine following extirpation in the 1800s. Great Cormorants were first reported breeding again in Maine in 1983. Since 1983, they have been reported nesting in association with Double-crested Cormorants on a number of isolated islands between Seal Island (Vinalhaven) and Swans Island. A high of 264 pairs was reported nesting on 6 islands in 1992. In recent years, the number of nesting pairs has declined.

The status of this species was covered in the Island-nesting Seabird Assessment and Management System. A goal to "maintain or enhance the long-term presence, diversity, and viability of seabirds nesting on the coast of Maine" is germane. Federal status: None.

Selected References

- Folger, D.C. 1986. Historic and present status of three seabird species nesting in the Gulf of Maine: Great Cormorants, Razorbill, and Arctic Tern. Endangered and Nongame Grant Report. ME Dept. of Inland Fisheries and Wildlife, Bangor, ME 45pp.
- MDIFW. 1993. Island-nesting Seabird Assessment. Unpublished report. ME Department of Inland Fisheries and Wildlife, Bangor. 60pp.
- Palmer, R.S. 1949. Maine Birds. Bull. Mus. Comp. Zool. Vol. 102, Harvard College, Cambridge, MA 656pp.

Prepared by: R. Bradford Allen

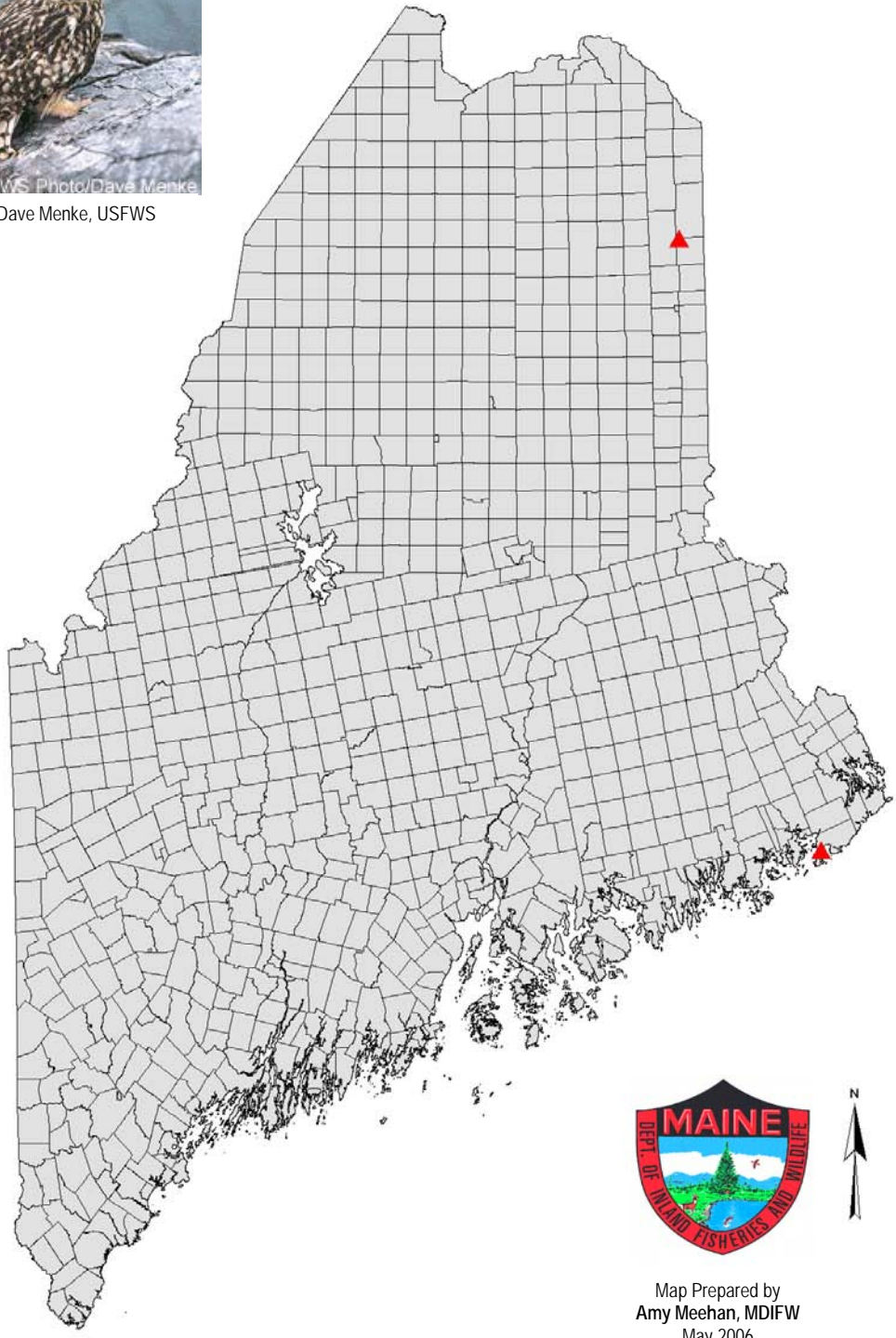
Date: May 9, 2006

Occurrences of Short-eared Owl (*Asio flammeus*)

Recommended Listing Status: THREATENED



Photo by Dave Menke, USFWS



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Asio flammeus*

Common Name: Short-eared Owl

Taxonomic Group: Bird

Range in Maine: Statewide

Habitat: Ground-nesting habitats potentially including expansive grasslands, heathlands, or marshes.

Seasonal Residency: Year-round inhabitants

Recommended Listing Status: THREATENED (breeding population only)

Basis for Listing Recommendation: Breeding of short-eared owls has only been documented in 2 settings in recent years despite extensive surveys of grasslands and blueberry barrens across Maine. Records since 1980 include an agricultural field in eastern Aroostook County and a military installation in coastal Washington County. Previous accounts (Knight 1908, Palmer 1949) depict more occurrences and a wider distribution of short-eared owls probably breeding in Maine. Long-term, drastic declines of farmlands and open, sandplain habitats in Maine are limiting for this species as with many other birds that ground nest in grasslands. This species is listed as "Endangered" in 3 other northeastern states and "Special Concern" across Canada. Short-eared owls are a rarity in most seasons, but relatively unknown numbers that arrive during fall, winter, and spring preclude listing without the qualifier "breeding population only."

Selected References

Knight, O. W. 1908. The birds of Maine. C. H. Glass, Bangor, ME. 693pp.

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Prepared by: Charles S. Todd

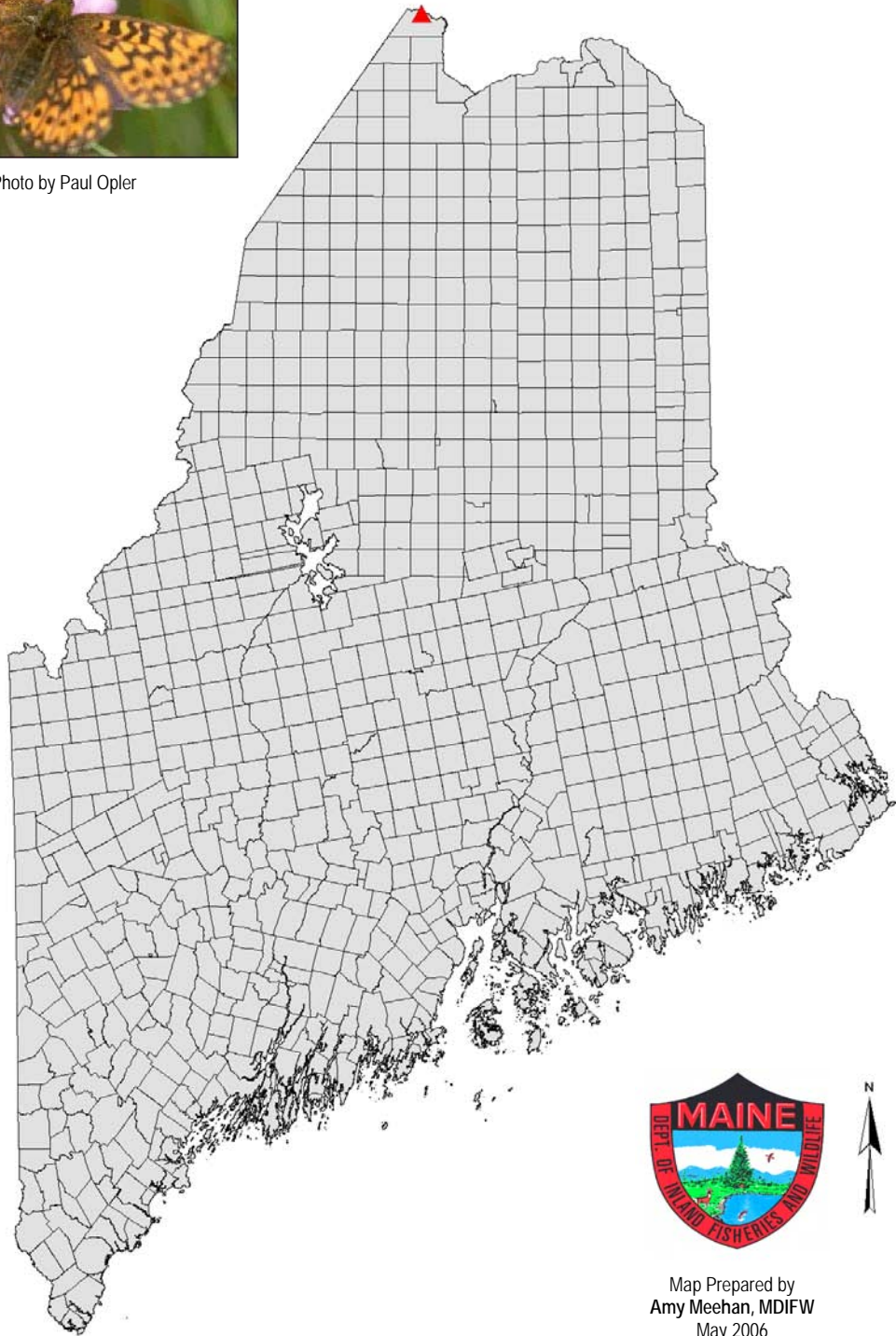
Date: May 12, 2006

Occurrences of Purple Lesser Fritillary (*Boloria chariclea grandis*)

Recommended Listing Status: THREATENED



Photo by Paul Opler



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Boloria chariclea grandis*

Common Name: Purple Lesser Fritillary

Taxonomic Group: Invertebrate: Butterfly (Lepidoptera)

Range in Maine: Northern (Aroostook Co)

Habitat: Dry Boreal Woodland

Seasonal Residency: Year-round

Recommended Listing Status: THREATENED

Basis for Listing Recommendation: Purple Lesser Fritillary is recommended for Threatened status because of its very limited distribution and marked population fragmentation. Its vulnerability to extirpation is intensified by: 1) the rare and specialized nature of its habitat in Maine, 2) southern range limits in Maine, and 3) lack of adequate existing regulations to protect its upland habitat.

This butterfly is only known from one locality, in extreme northwestern Aroostook County (Webster and deMaynadier 2005). In Maine and New Brunswick, Purple Lesser Fritillary is closely associated with dry boreal black spruce woodland where larvae probably feed on willow (*Salix* sp.). True boreal woodlands supporting the host plant for this butterfly appear to be rare, fragmented, and restricted to northern Maine. As such, only a few additional populations of Purple Lesser Fritillary are anticipated with further survey effort.

Development pressure is relatively low in northern Maine, but is nonetheless increasing and remains a potential threat to discrete upland localities hosting this rare butterfly. Other potential threats include intensive forestry (particularly clearcutting and site conversion), global warming, aerial pesticide spraying, and ecological succession of burn-origin open woodlands to dense conifer stands lacking suitable understory conditions for the host and the butterfly.

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Prepared by: Phillip deMaynadier

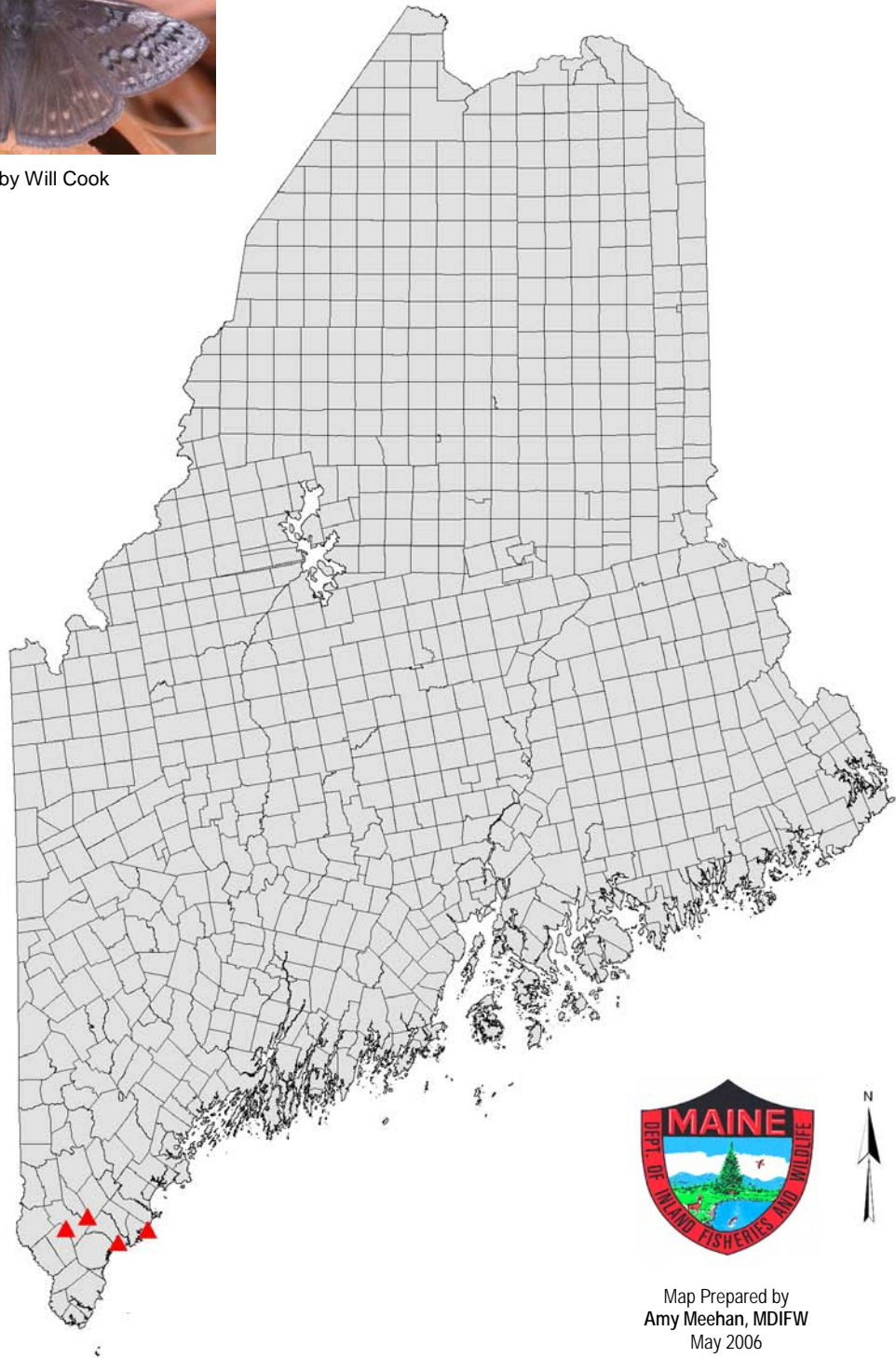
Date: May 10, 2006

Occurrences of Sleepy Duskywing (*Erynnis brizo*)

Recommended Listing Status: THREATENED



Photo by Will Cook



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Erynnis brizo*

Common Name: Sleepy Duskywing

Taxonomic Group: Invertebrate: Butterfly (Lepidoptera)

Range in Maine: Southern (York Co)

Habitat: Pitch Pine-Scrub Oak Barrens and Dry Oak Woodlands

Seasonal Residency: Year-round

Recommended Listing Status: THREATENED

Basis for Listing Recommendation: Sleepy Duskywing is recommended for Threatened status because of its very limited distribution and marked population fragmentation. Its vulnerability is intensified by: 1) the rare and specialized nature of its habitat in Maine, 2) significant documented declines in available habitat, 3) northern range limits in Maine, 4) characteristically low population numbers at most sites, and 5) lack of adequate existing regulations to protect its upland habitat.

The Sleepy Duskywing is known from only four modern localities, all in York County (Webster and deMaynadier 2005). This butterfly is strictly associated with scrub oak (*Quercus ilicifolia*) and black oak (*Q. velutina*), rare host trees restricted mainly to southern and coastal Maine. Given the discrete and specialized nature of the dry oak barren and woodland habitat hosting this butterfly, only a few additional locations for the species are anticipated with further survey effort.

Pitch pine-scrub oak barrens are a very rare natural community in the state, apparently restricted to 7 locations in southern Maine. The pine-oak barrens community now available is less than half of the acreage historically occurring in Maine (Widoff 1987). Small, isolated patches of scrub oak available elsewhere in Maine may not be large enough to support the species (Schweitzer 1984). Habitat alterations from land development, sand and gravel extraction, and timber harvesting have likely been influential. Furthermore, some barren communities require periodic burns or other disturbance to maintain appropriate successional structure. Previous and on-going insect control programs (mainly for gypsy moth) may also have negatively influenced the distribution of this species.

Selected References

- Cech, R. and G. Tudor. 2005. Butterflies of the East Coast. Princeton University Press, Princeton, NJ 345pp.
- Schweitzer, D.F. 1984. An inventory of the macrolepidoptera of the pitch pine-scrub oak barrens of southwestern Maine. Unpubl. report. The Nature Conservancy, Maine Chapter. 31pp.
- Scott, J.A. 1986. The butterflies of North America, a natural history and field guide. Stanford Univ. Press, Stanford, CA. 583pp.
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Prepared by: Phillip deMaynadier

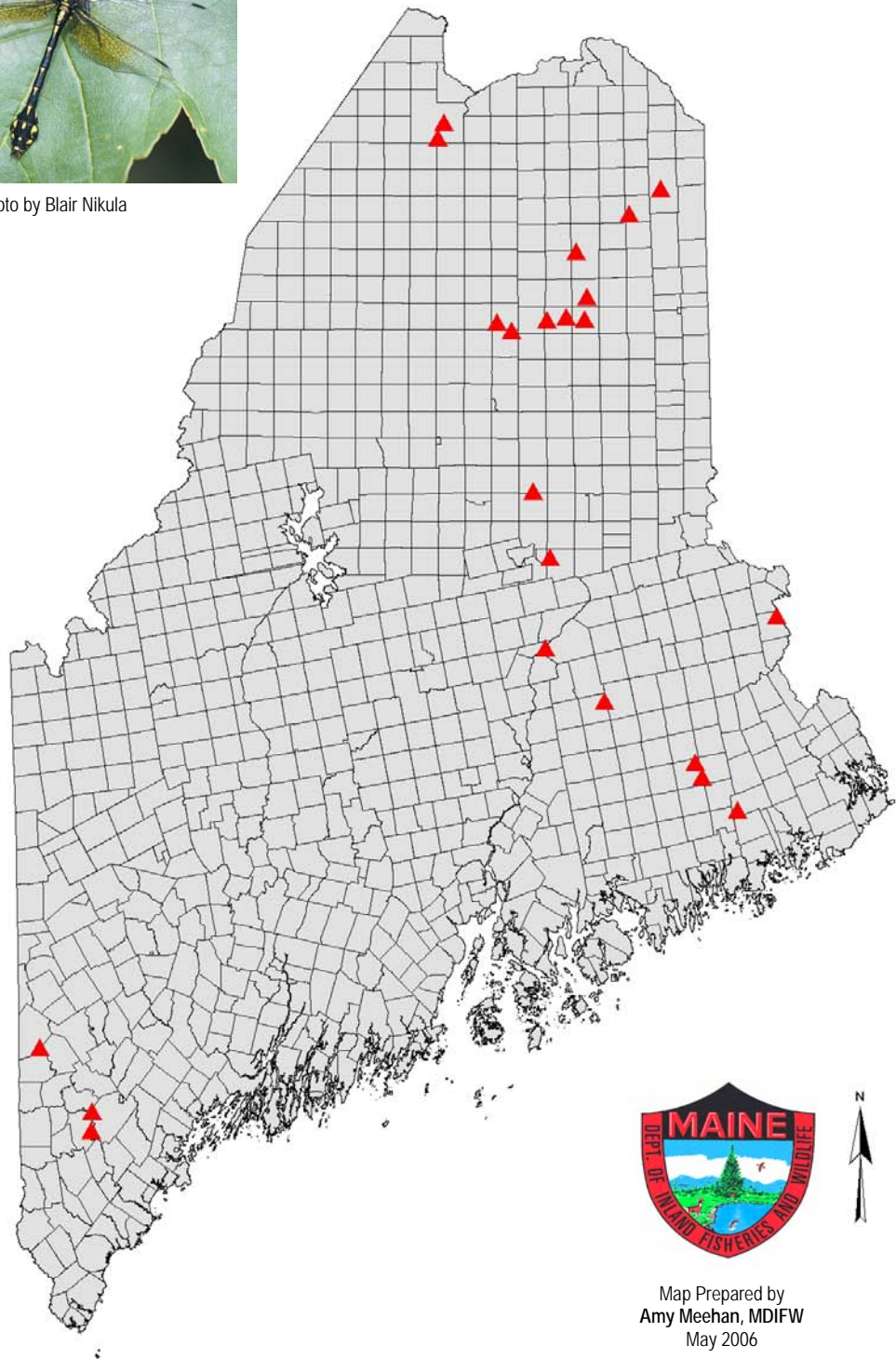
Date: May 10, 2006

Occurrences of Pygmy Snaketail (*Ophiogomphus howei*)

Recommended Listing Status: DELIST



Photo by Blair Nikula



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Ophiogomphus howei*

Common Name: Pygmy Snaketail

Taxonomic Group: Invertebrate: Dragonfly (Odonata)

Range in Maine: Statewide

Habitat: Forested rivers

Seasonal Residency: Year-round

Recommended Listing Status: Delist from Threatened to SPECIAL CONCERN

Basis for Listing Recommendation: The Pygmy Snaketail is recommended for Special Concern status because of its limited distribution and global rarity (G3; Vulnerable). Its vulnerability to extirpation is intensified by: 1) narrow, riverine habitat specialization, and 2) sensitivity to both aquatic (larvae) and riparian/upland (adult) perturbations.

This dragonfly is currently known from approximately 22 populations on 11 rivers statewide (Brunelle and deMaynadier 2005). Resident breeding status has been confirmed based on larval and exuvial (shed larval skin) collections from every water body. Moderately intensive surveys for riverine dragonflies have been conducted statewide, and only a few additional locations for this species are anticipated with further survey effort.

The genus (*Ophiogomphus*), to which the Pygmy Snaketail belongs, is among the least tolerant groups of aquatic insects to perturbations in water quality (Wisconsin Bureau of Endangered Resources 1999). Preferred habitat of the Pygmy Snaketail includes clean, free-flowing, forested rivers underlain by coarse benthos. These narrow habitat conditions are potentially threatened by aquatic pollution, impoundment, riparian zone degradation, and excessive watershed development. Schweitzer (1989) cites dams and deteriorating water quality as primary factors responsible for declines of this species elsewhere in its range.

The Pygmy Snaketail was previously listed as state Threatened in 1997 when the species was known from fewer populations among only 6 rivers. Extensive survey effort over the past decade has led to a better understanding of species status and distribution, thus informing the current listing recommendation of state Special Concern.

Selected References

Brunelle, P.M., and P.G. deMaynadier. 2005. The Maine Damselfly and Dragonfly Survey: A Final Report. Technical report submitted to the Maine Department of Inland Fisheries and Wildlife, Bangor, ME.

Dunkle, S.W. 2000. Dragonflies through binoculars: a field guide to dragonflies of North America. Oxford University Press, New York, NY. 266pp.

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Schweitzer, D.F. 1989. A review of Category 2 Insecta in USFWS Regions 3, 4, 5. Unpublished report prepared for U.S. Fish and Wildlife Service. Newton Corners, MA. 143pp.

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Prepared by: Phillip deMaynadier

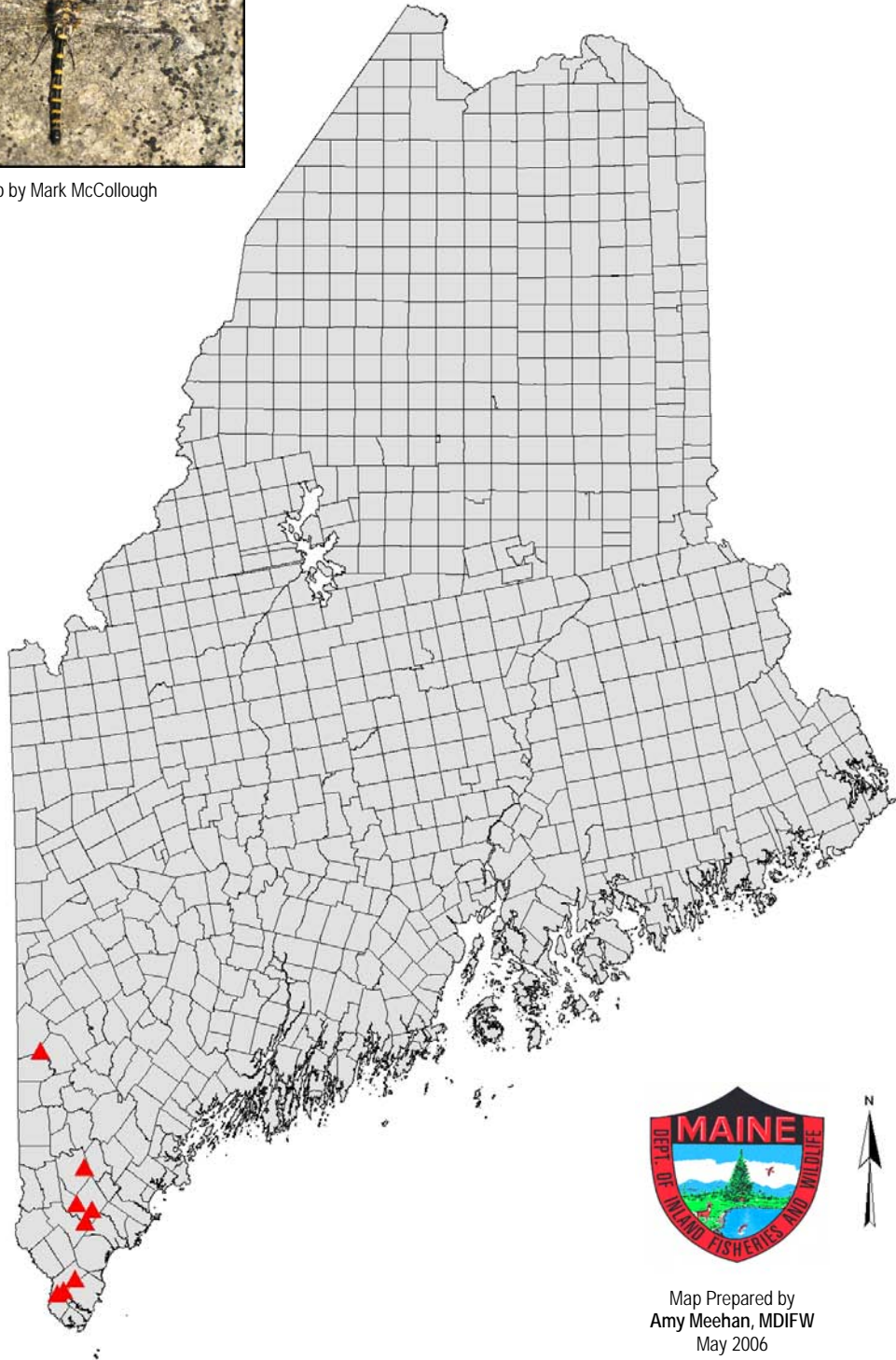
Date: May 10, 2006

Occurrences of Ringed Boghaunter (*Williamsonia lintneri*)

Recommended Listing Status: THREATENED



Photo by Mark McCollough



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Williamsonia lintneri*

Common Name: Ringed Boghaunter

Taxonomic Group: Invertebrate: Dragonfly (Odonata)

Range in Maine: Southwestern (York and Oxford Co)

Habitat: Small acidic pocket swamps, fens and vernal pools

Seasonal Residency: Year-round

Recommended Listing Status: THREATENED

Basis for Listing Recommendation: The Ringed Boghaunter is recommended for Threatened status because of its limited distribution, fragmented populations, and small population size. Its vulnerability to extirpation is intensified by: 1) the specialized nature of its habitat, 2) northern range limits in Maine, and 3) lack of adequate existing regulations to protect its breeding and foraging habitat.

Since 1997, MDIFW and the USFWS have surveyed over 240 wetlands for this species and documented only 8 populations in 14 wetlands in York and Oxford Counties. The wetland microhabitat requirements of this species are highly specific (deMaynadier and Carlson 1998), limiting the number of additional populations likely to be documented with further survey effort. Also, maximum local population size rarely exceeds 50 individuals, therefore Maine's currently documented population is estimated at less than 1000 individuals -- an exceptionally small number given the fluctuating dynamic of most invertebrate populations.

The small pocket swamps and vernal pools typically occupied by the Ringed Boghaunter are not adequately protected by existing regulatory mechanisms as they often fall below the size required to initiate significant permit review under the state's Natural Resources Protection Act. This is noteworthy given the restricted range of the Ringed Boghaunter to southern Maine where rates of development and wetland loss are the highest in the state. Elsewhere in New England, some populations of the Ringed Boghaunter have been reported lost to habitat destruction and pollution.

The Ringed Boghaunter was previously listed as state Endangered in 1997 when the species was known from only a single site (2 wetlands) in York County. Extensive additional survey effort over the past decade has led to a better understanding of species status and distribution, thus informing the current listing recommendation of state Threatened.

Selected References

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deMaynadier, P. and B. Carlson. 1998. A survey and evaluation of habitat potential for *Williamsonia lintneri* in southern Maine, 1998. Unpublished report to the Maine Department of Inland Fisheries and Wildlife, Bangor, Maine.

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Prepared by: Phillip deMaynadier

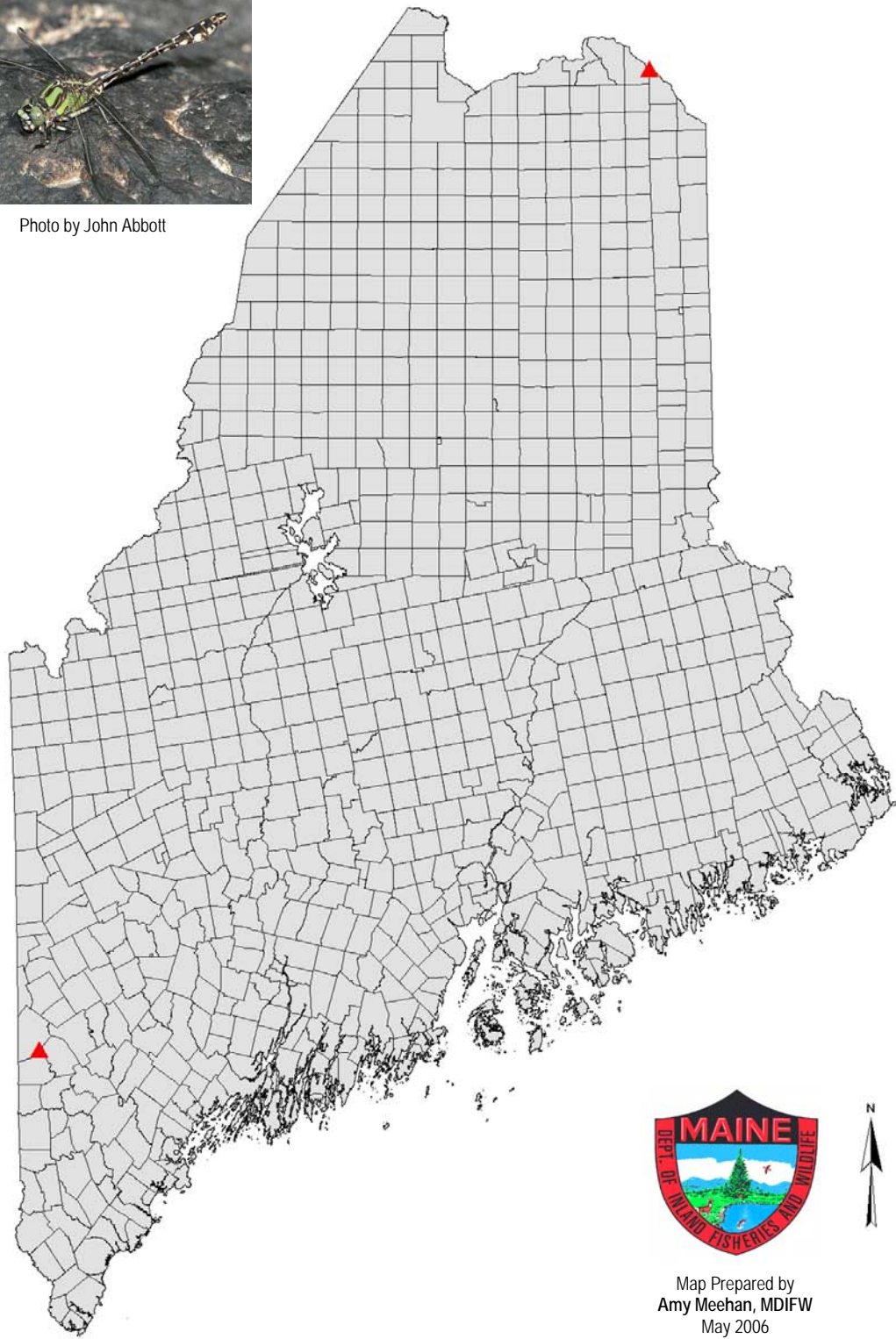
Date: May 10, 2006

Occurrences of Boreal Snaketail (*Ophiogomphus colubrinus*)

Recommended Listing Status: THREATENED



Photo by John Abbott



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Ophiogomphus colubrinus*

Common Name: Boreal Snaketail

Taxonomic Group: Invertebrate: Dragonfly (Odonata)

Range in Maine: Saco and St. John Rivers

Habitat: Forested streams and rivers

Seasonal Residency: Year-round

Recommended Listing Status: THREATENED

Basis for Listing Recommendation: The Boreal Snaketail is recommended for Threatened status because of its highly limited distribution and marked population fragmentation. Its vulnerability to extirpation is intensified by: 1) narrow, riverine habitat specialization, and 3) sensitivity to both aquatic (larvae) and riparian/upland (adult) perturbations.

This dragonfly is currently known from only two populations on two rivers statewide, the upper St. John and the upper Saco (Brunelle and deMaynadier 2005). Resident breeding status has been confirmed based on larval and exuvial (shed larval skin) collections from each river. Moderately intensive surveys for riverine dragonflies have been conducted statewide and only few additional locations for this species are anticipated with further survey effort.

The genus (*Ophiogomphus*), to which the Boreal Snaketail belongs, is among the least tolerant groups of aquatic insects to perturbations in water quality (Wisconsin Bureau of Endangered Resources 1999). Preferred habitat of the Boreal Snaketail includes clean, free-flowing, forested streams and rivers underlain by coarse benthos. These narrow habitat conditions are potentially threatened by aquatic pollution, impoundment, riparian zone degradation, and excessive watershed development. Schweitzer (1989) cites dams and deteriorating water quality as the primary factors responsible for declines in related species of riverine odonates.

Selected References

Brunelle, P.M., and P.G. deMaynadier. 2005. The Maine Damselfly and Dragonfly Survey: A Final Report. Technical report submitted to the Maine Department of Inland Fisheries and Wildlife, Bangor, ME.

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Prepared by: Phillip deMaynadier

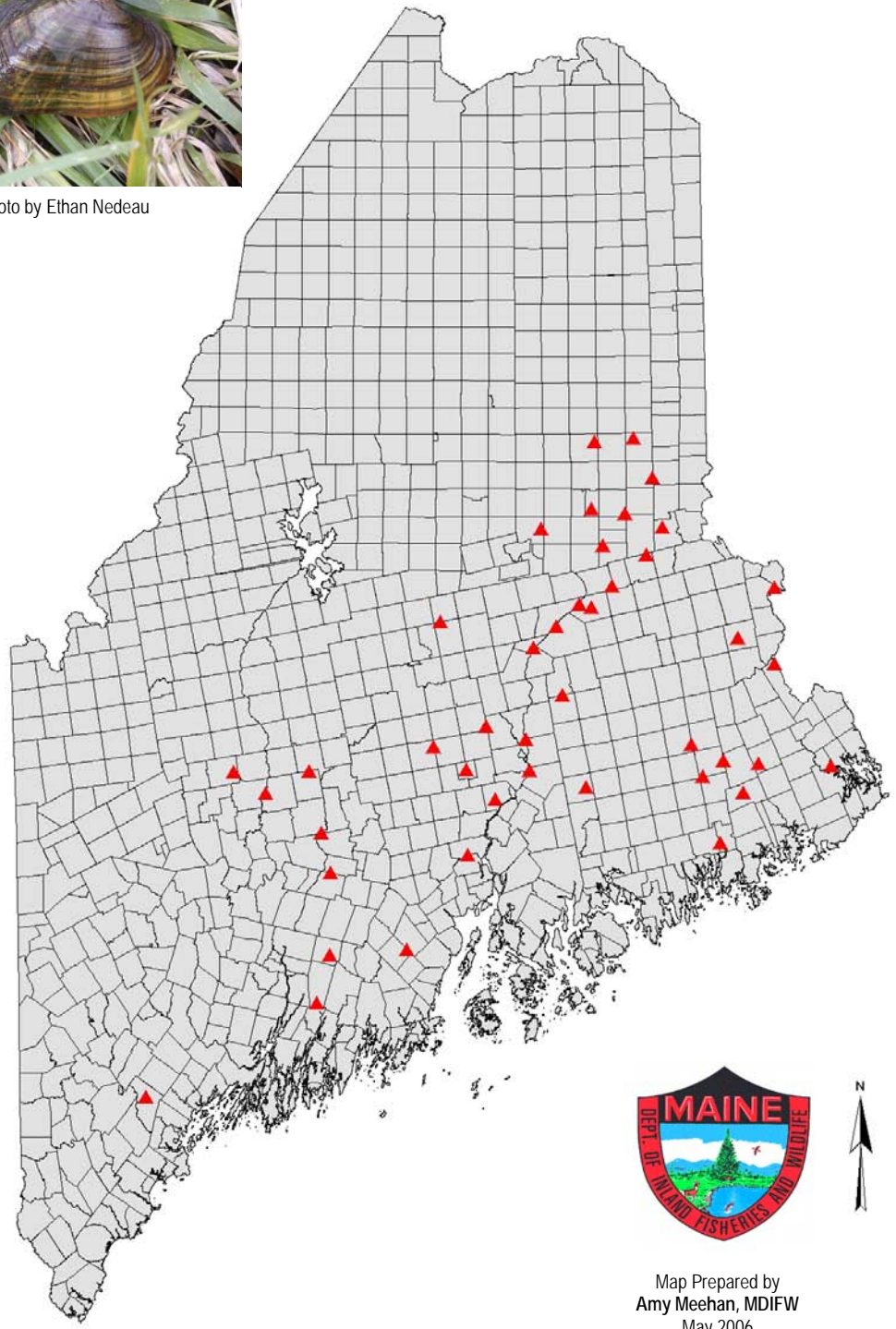
Date: May 10, 2006

Occurrences of Brook Floater (*Alasmidonta varicosa*)

Recommended Listing Status: THREATENED



Photo by Ethan Nedeau



Map Prepared by
Amy Meehan, MDIFW
May 2006

Scientific Name: *Alasmidonta varicosa*

Common Name: Brook Floater

Taxonomic Group: Invertebrates (Freshwater Mussels)

Range in Maine: Primarily eastern, with scattered populations in midcoast and southern regions

Habitat: Streams and rivers with high water quality and stable substrates

Seasonal Residency: Year-round inhabitant

Recommended Listing Status: THREATENED

Basis for Listing Recommendation: The brook floater is recommended for Threatened status because of the very small population size and lack of recruitment observed at most occurrences. Its vulnerability to extirpation is intensified by: 1) high sensitivity to changes or degradations in its habitat; and 2) widespread declines and extirpations elsewhere.

Statewide surveys document the brook floater's current distribution as largely confined to the Penobscot River watershed and several Downeast river systems, with scattered populations also found in the Kennebec and a few, small midcoast drainages. A highly isolated population in the Pleasant River (Cumberland Co.) is the only known occurrence in southern Maine. Nearly 70% of all observations are based on ≤ 10 live animals or relict shells only -- significant populations or young individuals are rarely observed. This same pattern is repeated throughout the species' entire range, where severe declines and numerous extirpations are well documented. Consequently, the brook floater is listed as Endangered or Threatened in nearly every state where it is found, including all other Northeastern states. It is presumed extirpated in Rhode Island and Delaware.

Extremely low numbers and an apparent lack of reproductive success, combined with an absence from most southern, midcoast and central watersheds, suggest declines similar to those observed elsewhere may also have occurred in Maine. Recent failures to relocate two previously documented populations in the Dennys (Washington Co.) and Presumpscot (Cumberland Co.) Rivers add to concerns about the species' population trend and long-term viability in Maine.

Brook floaters require free-flowing rivers and streams with excellent water quality, and are very sensitive to habitat degradation and changes in their environment. Small populations with little or no recruitment are at much greater risk of extirpation when changes do occur. Also, the freshwater mussel's reliance on specific fish hosts for reproduction increases their vulnerability when changes affect local fish communities as well. For the brook floater, a century and more of cumulative impacts to habitat quality from dam construction, water pollution, habitat alteration, sedimentation, introduced species, and a variety of adverse land and water uses, have all contributed to the species' range wide decline.

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Prepared by: Beth I. Swartz

Date: May 12, 2006

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